

WHAT IS CLAIMED IS:

1. A connector, comprising:

first and second housings (20, 10) connectable with each other,

a movable member (40) formed with a cam groove (44) and movably provided on the first housing (20),

a cam pin (13) provided on the second housing (10),

the housings (20, 10) being pulled toward each other to be properly connected as the movable member (40) is moved from an initial connection position (ICP) where the housings (20, 10) are fit lightly together while the cam pin (13) is engaged with the cam groove (44),

an erroneous connection preventing means (32, 16) for preventing the connection of the housings (20, 10) at a preventing position (PP) which is located before the initial connection position (ICP) and where at least a part of the cam pin (13) is located in the cam groove (44) upon erroneously connecting the two housings (20, 10), and

a push-back surface (49; 50) at an opening edge (44A) of the cam groove (44) and capable of exerting a force (F1) on the cam pin (13) at the preventing position (PP) and in a direction to separate the housings (20, 10), the push-back surface (49; 50) being configured such that the force (F1) is larger than a frictional resistance between the housings (20, 10).

2. The connector of claim 1, wherein the movable member (40) is a lever (40) rotatably provided on the first housing (20).

3. The connector of claim 1, wherein a contacting direction (F) of the push-back surface (49; 50) with the cam pin (13) defines an angle of no more than about 45° to a connection axis (CD) of the housings (20, 10).

4. The connector of claim 1, wherein the push-back surface (49; 50) comprises a convex surface (50).

5. The connector of claim 1, wherein the cam pin (30) contacts the push-back surface (49, 50) at a point of tangency upon erroneously connecting the two housings (20, 10), a line (F) passing centrally through the cam pin (30) at the point of tangency defines an angle of no more than about 45° to a connection axis (CD) of the housings (20, 10).

6. The connector of claim 1, wherein the erroneous connection preventing means (32, 16) comprises at least one groove (17) and at least one rib (32) which is insertable into the groove (17) upon proper connection of the two housings (20, 10).

7. A set of connectors comprising at least two connectors according to claim 6.

8. The set of connectors of claim 7, wherein positions of the rib (32) and the groove (17) differ for each pair of housings among a set of connectors so that the housings can be connected only in a correct combination.

9. A connector, comprising:

first and second housings (20, 10) connectable with each other along a connecting direction (CD), a cam pin (13) provided on the second housing (10);

a lever (40) mounted on the first housing (20) for rotation in a connection rotation direction (CRD), the lever (40) having a cam groove (44) configured for engaging the cam pin (13) when the housings (20, 10) are fit lightly together at an initial connection position (ICP) and pulling the housings (20, 10) towards each other as the lever (40) is rotated in the connection rotation direction (CRD); and

a push-back surface (49; 50) at an opening edge (44A) of the cam groove (44) and at a trailing side of the cam groove (44) relative to the connection rotation direction (CRD), the push-back surface (49; 50) being configured and disposed for exerting a force (F1) on the cam pin (13) in a direction opposite the connecting direction (CD) if the lever (40) is rotated in the connection rotation direction (CRD) before the housings (20, 10) reach the initial connection position (ICP), the push-back surface (49; 50) further being configured such that the force (F1) is larger than a frictional resistance between the housings (20, 10).

10. The connector of claim 9, further comprising an erroneous connection preventing means (32, 16) for permitting connection of two properly matched housings (20, 10) and preventing connection of two improperly matched housings (20, 10) at a preventing position (PP) which is located before the initial connection position (ICP) and where only a part of the cam pin (13) is in the cam groove (44).

11. The connector of claim 9, wherein at least part of the push-back surface (50) is convex.

12. The connector of claim 9, wherein the cam pin (30) contacts the push-back surface (49, 50) at a point of tangency, a line (F) passing centrally through the cam pin (30) and through the point of tangency defines an angle of no more than about 45° to the connection direction (CD) of the housings (20, 10).

13. A connector, comprising:

first and second housings (20, 10) connectable with each other along a connecting direction (CD), a cam pin (13) provided on the second housing (10);

a movable member (40) mounted on the first housing (20) for movement in a movement direction at an angle to the connecting direction, the lever (40) having a cam groove (44) configured for engaging the cam pin (13) when the housings (20, 10) are fit lightly together at an initial connection position (ICP) and pulling the housings (20, 10) towards each other as the lever (40) is moved in the movement direction (CRD); and

a push-back surface (49; 50) at an opening edge (44A) of the cam groove (44) and at a trailing side of the cam groove (44) relative to the movement direction, the push-back surface (49; 50) being configured and disposed for exerting a force (F1) on the cam pin (13) in a direction opposite the connecting direction (CD) if the movable member (40) is rotated in the connection rotation direction (CRD) before the housings (20, 10) reach the initial connection position (ICP), the push-back surface (49; 50) further being

configured such that the force (F1) is larger than a frictional resistance between the housings (20, 10).

14. The connector of claim 13, further comprising an erroneous connection preventing means (32, 16) for permitting connection of two properly matched housings (20, 10) and for preventing connection of two improperly matched housings (20, 10) at a preventing position (PP) which is located before the initial connection position (ICP) and where only a part of the cam pin (13) is in the cam groove (44).

15. The connector of claim 14, wherein at least part of the push-back surface (50) is convex.